

03-13-09

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

----- In the Matter of -----)	Docket No. 2008-0273
)	
PUBLIC UTILITIES COMMISSION)	
)	
Instituting a Proceeding to Investigate the)	
Implementation of Feed-in Tariffs)	
_____)	

HAWAII RENEWABLE ENERGY ALLIANCE'S RESPONSE

TO

HECO COMPANIES' INFORMATION REQUESTS

ON

HREA'S OPENING STATEMENT OF POSITION

AND

CERTIFICATE OF SERVICE

PUBLIC UTILITIES
COMMISSION

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Warren S. Bollmeier II, President
Hawaii Renewable Energy Alliance
46-040 Konane Place 3816
Kaneohe, HI 96744

(808) 247-7753
wsb@lava.net

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ON

HREA'S OPENING STATEMENT OF POSITION

In accordance with schedule for the instant docket as approved by the Commission in its Decision and Order, dated January 20, 2009, the Hawaii Renewable Energy Alliance ("HREA") respectfully offers its Response to Information Requests from the HECO Companies¹ on HREA's Opening Statement of Position in the instant docket.

Our response is provided in Attachment A.

¹ The HECO Companies are Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company, Ltd.

Attachment A
HREA Response to HECO Companies' IRs on HREA's OSOP

HREA respectfully submits the following response to the 25 IRs it received from the HECO Companies.

HECO/HREA-IR-1

Do you agree that in addition to achieving a greater level of renewable energy for the State, reliability, power quality and ratepayer impacts are important considerations that must be addressed as a part of any feed-in tariff (FIT) design? If not, please discuss why not.

HREA Response:

Yes.

HECO/HREA-IR-2

Do you agree that the HECO, MECO and HELCO systems have different technical and reliability considerations? If not, please discuss why not.

HREA Response:

Yes.

HECO/HREA-IR-3

Do you agree that due to the existing and/or anticipated levels of intermittent renewable resources on each island system, that there may be technical and/or operational constraints upon the amount of additional intermittent renewable energy that each island system can absorb? If not, please discuss why not.

HREA Response:

Yes. But all utilities have technical and/or operational constraints. HREA believes the spirit and intent of PURPA is to: (i) to encourage diversification of the resources utilities rely on for the generation of power, and (ii) obligate the utilities to integrate those qualified resources under PURPA, i.e., renewables and cogeneration into their grids.

Whereas the HECO Companies have consistently required renewable IPPs to "bend" to meet the requirements of the "grid," we believe in the true spirit and intent of PURPA the HECO Companies should take the opposite path. Specifically, given the technology and performance characteristics of each project as they come on-line, the HECO Companies should modify and enhance their ancillary services and other capabilities as necessary to integrate each project.

In part, we believe the HECO Companies started down that path in the 1980's with the advent of the early prototype windfarms on the Oahu and Big Island. By the late 1980's, the

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primary surviving windfarm, Kamao'a on the Big Island, had made certain internal modifications, such as adding capacitor banks, to improve its power factor and while there were power fluctuations, HELCO accepted the windpower. Over time, HELCO upgraded its system by adding automatic generation control, and there was an evaluation in the early 1990's of the potential for a battery-inverter system at Keahole to provide system frequency regulation and peak shaving capabilities. Unfortunately, that project did not get approved.

That said, we are encouraging the HECO Companies to reconsider its early efforts on Oahu and the Big Island, which we believe were in the spirit and intent of PURPA., and that spirit and intent, we believe extends to the Hawaii Clean Energy Initiative ("HCEI").

HECO/HREA-IR-4

How does your FIT proposal insure that reliability and power quality on each island electric system are maintained?

HREA Response:

Yes. We propose that the utility provide all ancillary services to insure that reliability and power quality are maintained on each island. Given that, the FiT program can work more efficiently and effectively to accelerate the deployment of renewables in the islands. As a back-up, on a project by project basis, if the utility and developer agree that a project-specific ancillary services component is desirable, the developer could provide the services as an "add-on" to the basic FiT or on a separate FiT.

However, it is still our belief that the more cost-effective approach will be for the utility to identify key locations in its grids where the appropriate technology (such as a battery-inverter system) should be deployed, and to do so as rapidly as possible

HECO/HREA-IR-5

What specific data, evaluations, studies or analyses did you rely upon as a part of any conclusion that your FIT proposal insures reliability on each island system? Please provide that data, evaluations, studies and/or analyses to the extent they are available.

HREA Response:

HREA does not believe it has access to any data, evaluations, studies or analyses that the

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HECO Companies do not already have. For example, with respect to the Keahole battery-inverter proposal, there were studies conducted for HELCO by Sandia National Laboratories and case studies with EPRI on battery projects in Chico, California and Puerto Rico. There was also a proposal for a pumped-hydro storage system at Kahua Ranch in the early 1990's to provide peak shaving capabilities under contract to HELCO.

We assume that these early studies and efforts have been far surpassed in the interim, and we look forward to see the results of the current HCEI-inspired grid studies. Given that we believe the solutions may already be known, HREA encourages the HECO Companies to present the preliminary results as soon as possible. Ultimately, we see the importance of a Grid Infrastructure Plan ("GRIP"), hopefully as an output of the envisioned Clean Energy Scenario Plan ("CESP") process, that will help the HECO Companies devise and implement solutions for integrating more renewables on their grids.

HECO/HREA-IR-6

As variable generation is presently having an adverse impact on a system's reliability, how would your FIT proposal mitigate any further adverse impacts?

HREA Response:

See our response to HECO/HREA-IR-5

HECO/HREA-IR-7

Do you agree that your FIT proposal could result in increases in the rates paid by utility ratepayers? If so, what do you view as an acceptable level of increase for each of the utility system's ratepayers? What do you base that opinion on? Please provide any evaluations or analyses or studies used to support this opinion.

HREA Response:

HREA believes that the benefits of net metering to the utility and its ratepayers are equal to or greater than their costs. Given that the FiT rates to be established as an output of the instant docket are likely to be less than retail rates, the benefits of the FiT should exceed their costs.

Of course, the benefit/cost discussion has been going on for years with no agreement as to a methodology for a detailed study. If the HECO Companies believe such a study is needed, we suggest that one be implemented by the HECO Companies or the CA in collaboration with

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the other Parties on the instant docket. Also, HREA asks HECO Companies to share the results of any studies with the other Parties that they may have already conducted on benefits/costs of net metering and/or FiT.

HECO/HREA-IR-8

How does your FIT proposal insure that ratepayers within each of the three utility service territories do not receive significant rate increases?

HREA Response:

HREA is not sure what the HECO Companies means by significant rate increases. Notwithstanding that need for clarification and our response on HECO/CA-IR-7, we do not believe there would likely be any significant rate increase due to the FiT program. Over time, as renewables replace fossil fuel generators, we would anticipate (as supported by the initial HCEI economic impact analysis) that rates, and more importantly energy bills, would decrease.

As one point of reference, the initial surge of renewables in Germany under their FiT program resulted in installation of 14,000 MW of renewables at a cost of about 1 euro per month per residential customer. This would not appear to represent a significant rate increase, especially given the Germans admittedly found their initial FiT rates to be generous, and subsequently readjusted them.

HECO/HREA-IR-9

What specific data, evaluations, studies or analyses did you rely upon as a part of any conclusion that your FIT proposal insures that ratepayers within each of the three utility service territories do not receive significant rate increases? Please provide that data, evaluations, studies and/or analyses to the extent they are available.

HREA Response:

See our our responses on HECO/HREA-IRs 7 and 8.

HECO/HREA-IR-10

Do you agree that competitive bidding can provide benefits to ratepayers? If so, how does your proposal insure that ratepayers receive the benefits that competitive bidding can provide?

HREA Response:

Yes. HREA's proposal includes continuation of competitive bidding for larger projects, i.e.,

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projects greater than 20 MW. It is conceivable that utilities and ratepayers will benefit from competitive bidding of smaller projects, especially if the competitive bidding processes were implemented by an independent third party.

However, we believe the FiT can be more efficient, saving the costs to the HECO companies and industry to costs associated with competitive bidding processes. We also recognize that we need to get the pricing "right" on FiTs, and we believe this is possible.

HECO/HREA-IR-11

Please explain why a feed in tariff should be applied to larger resources, rather than competitively bid to assure ratepayers the lowest prices for significant blocks of renewable energy?

HREA Response:

See our our response on HECO/HREA-IR-10.

HECO/HREA-IR-12

Do you agree that if a Renewable Energy Generating Facility is unable to meet the technical requirements set forth in the utilities' rules relating to interconnection with the utility's electric system, that Renewable Energy Generating Facility should not be interconnected with the utility's electric system? If not, please discuss why not.

HREA Response:

HREA is not sure what the HECO Companies mean by technical requirements in this context, and whether said technical requirements apply to all renewables on the FiT program. Perhaps the best way to respond to this IR is to consider first the original proposal submitted by the HECO Companies and the CA for projects up to 500 kW on Oahu and 250 kW on Maui and the Big Island and then compare that proposal with HREA's view on an alternate proposal where FiTs would apply to projects up to 20 MW..

HREA's understanding of the HECO/CA proposal is that as-available resources, e.g., wind, solar and in-line hydro would be eligible for FiTs. With respect to wind and solar up to 500 kW, HREA understands that the technical requirements would be those currently in Rule 14 with possible modifications.

HREA's view technical requirements based on an alternative proposal, such as promulgated

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by Blue Plant, as follows for customer-side ("retail") and utility-side ("wholesale") applications:

- Customer-Side: Projects must meet requirements as specified in utility Rule 14, as modified (TBD) for FiTs. For initial FiT implementation there would be no:
 - ❖ performance standard requirements (e.g., ramp rate restrictions),
 - ❖ fault ride-through requirements, and
 - ❖ utility control of individual projects up to 5 MW. Note: a cost adder will be negotiated, if utility control is required on larger projects.
- Utility-Side: Projects must meet basic interconnection requirements as specified in the utility "Rule XY," as developed in the instant docket. The basic Interconnection requirements (not including performance standards and fault-ride through capability) will be derived from existing power purchase agreements and modified (TBD). The new rule will include the following two options:
 - ❖ Utility Responsibility (Preferred Option): the utility designs and implements the necessary ancillary services to maintain grid safety and integrity. Ancillary services will include, but not be limited to: frequency regulation, voltage support, peak shaving, load shifting, black start capability and VAR support; and
 - ❖ Customer/Developer Responsibility (Back-Up Option): if ancillary services are required by the utility at the project level, the customer/developer will provide the necessary equipment and controls to smooth project output and to provide Fault Ride-Through Capability. Note: if this option is invoked the ancillary services will be paid via an adder to the basic FiT payment.

HECO/HREA-IR-13

Do you agree that, as an electric system must remain in balance, if there is a greater amount of energy being generated in relation to load being served that generation must be reduced or curtailed to achieve system balance (assuming that load cannot be increased)? If not, please describe how the system balance can otherwise be achieved.

HREA Response:

Yes, the ideal operational state is for the system to be in balance. There are at least two

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ways to respond to this IR.

First, we believe it is difficult, if not impossible, to maintain perfect balance at 60 Hz (24/7), and sometimes challenging to maintain grid operation in the currently specified limits with existing utility generation and control equipment. Thus, HREA suggests that perhaps the existing grid operational frequency criteria might be relaxed in the future, and this option should be examined as part of the development of the GRIP.

Second, regardless of the grid frequency criteria, yes, one option would be to reduce generation, whether it is utility-owned or independent. However, why not develop a full range of options, including ways to increase loads, such as by charging batteries or electric vehicles, pumping water or adding discretionary loads as needed? Again, these all these options should be pursued in the development of the GRIP.

HECO/HREA-IR-14

Please explain how your proposal to require the utility to take all renewable energy generated by a FIT resource regardless of system need assures system balance and stability?

HREA Response:

As noted above in our responses to HECO/HREA-IR's 3, 5, 6, and 12, HREA believes it is the utility's responsibility to maintain system balance and stability, regardless of the level of renewable energy generation.

HECO/HREA-IR-15

Is it your position that FIT resources may not be curtailed under any circumstance? If there are circumstances under which a FIT resource may be curtailed, please explain in detail how that curtailment would be accomplished. Please explain in detail how existing renewable projects fit into any curtailment order and the basis for assigning a lower curtailment priority to existing renewable resources.

HREA Response:

Yes, except in circumstances where the FIT resource is:

1. not available, e.g., lack of wind or sun or water, and
2. experiencing emergency situations and self-curtails to protect itself, such as extreme winds or in emergency grid conditions, e.g., high/low voltage.

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Note: the advanced ("smart") grid of the future will ideally have sufficient storage and back-up generation, including spinning reserve, to accommodate all renewable (FiT and otherwise) resources, such that curtailment by the utility will not be required.

HECO/HREA-IR-16

Please provide any evaluations, studies or analyses to support the following in your FIT proposal: (1) the inclusion of each renewable resource type; (2) the viability of each renewable resource type for each island system; (3) the project size demarcations for each renewable resource type; (4) the viability of each project size for each island system; and (5) the basis for a different or separate rate for each size demarcation (if applicable). This should include any information or evidence that you may have on the general or specific plans of any renewable resource developer to develop renewable resources of this type, and including the anticipated size of the project, on any island system within the next one, three and five years.

HREA Response:

HREA's evaluation is as follows:

- (1) the initial proposed FiT resource types are those commercial technologies, such as wind, solar, biomass and hydro, that are already in Hawaii,
- (2) resource viability is based on a customer's/developer's assessment of a number of factors including installed system and operating costs, availability and cost of financing and the FiT payment rate,
- (3) there is only one project demarcation, 20 MW, as the interim limit based on industry's assessment of the resource viability as indicated in (2),
- (4) see response to (2) and (3), and
- (5) there are certain "economies of scale" as project size increases, which differ by technology.

Note: it is hard to project the level of market activity at the present time, other than to say if a strong signal is given to the market, i.e., FiT payment rates to the customer/developer are fair, the market will respond accordingly.

HECO/HREA-IR-17

Please describe the methodology and rationale used to determine the proposed twenty (20) year terms in your FIT proposal for each technology. Please provide any evaluations, studies or analyses to support the proposed 20 years terms for each technology listed.

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HREA Response:

Typically, a 20 year term is justified based on a series of trade-offs the renewable industry makes in determining the overall economic viability of a project. These trade offs include: (i) a longer period which is needed to be as competitive as possible with conventional generation sources, which typically have design lives greater than 20 years; (ii) renewable systems are typically being designed for a 30 years life; and (iii) available project financing terms of 10 to 15 years. Thus, a 20-year term appears to represent a good compromise, including enough time for investors to make a fair return on their investment.

HECO/HREA-IR-18

Please provide the bases for the proposed penetration limits for intermittent renewable energy sources. Please provide any evaluations, studies or analyses to support the proposed penetration limits, including in particular any evaluations, studies or analyses regarding maintenance of system reliability at the proposed penetration limits.

HREA Response:

There may need to be ultimate limits on the penetration limits for certain resources, including intermittent renewable energy sources. However, at this point, HREA does believe we know enough yet to specify what those limits should be. For example, if the grids had sufficient storage and related ancillary services, there would be absolutely no need to limit intermittent resources for technical reasons. There would be limits, of course, at the time, if and when, there is no market for additional renewable electricity.

HECO/HREA-IR-19

Please explain in detail how the proposed queuing procedures based upon those procedures proposed by the Midwest ISO would operate and be implemented for each island electric system. In particular, please provide any evaluations, studies or analyses of potential differences between the Midwest ISO service territory and the Hawaii utility electric systems and how those differences would be accommodated and addressed through your FIT proposal. Please discuss in detail whether the quality of power (steadiness, predictability, ability to enhance regulating resources on the grid and other such characteristic that are important to power reliability) should be a factor in setting the priority a project receives, and if not, why not.

HREA Response:

HREA is open to discussion on the merits of the Midwest ISO approach, given the alternate

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proposal includes both firm and as-available resources. For example, perhaps there should be separate solicitations for firm vs. as-available resources.

HECO/HREA-IR-20

Should a utility be entitled to use the generated output of a renewable resource in its service territory toward meeting a state or county mandated RPS standard regardless of ownership of the environmental credits? If not, please discuss why not?

HREA Response:

Yes. At the present time, renewable energy credits ("Recs") are not needed for compliance with our state RPS law. If they were, the FiT rates would need to be increased accordingly.

HECO/HREA-IR-21

Re: Issue 5

Please describe in detail the technologies for which you believe sufficient data and cost information exists and for which technologies the same level of information may not be available.

HREA Response:

As noted previously, HREA believes wind, solar, biomass and hydropower technologies are commercial in Hawaii and deserve consideration for FiT. Of these, HREA believe sufficient data and cost information exist for wind, solar and biomass. While there may be sufficient data and information on hydropower resources, we are not sure if there are enough project opportunities to justify a hydropower FiT. However, we are open to further discussion on the need for a hydropower FiT.

HECO/HREA-IR-22

Ref: Issue 6

Please provide any evaluations, studies or analyses to support your proposal that the Commission establish FITs for resources up to 20 MW in size.

HREA Response:

See our response to HECO/HREA-IRs-10, 12 and 16.

HECO/HREA-IR-23

Ref: Issue 10

Please describe in detail your efforts to "collect more data and information" and "assumptions about the growth of the market."

HREA Response:

HREA is preparing a detailed response to the cost and information questions of Appendix A

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of the NRRI Scoping Paper to support FiT payments for wind and solar projects. Regarding potential growth of the market see our response to HECO/HREA-IR-16.

HECO/HREA-IR-24

Please define the specific ancillary services that HREA is referencing as the technical solution to these impacts. In addition to the issues HREA sees as resolved by ancillary services, does HREA believe that there may be the potential for FIT to result in issues beyond those that can be resolved by ancillary services, such as the need for anti-islanding schemes, protection system updates, additional infrastructure to address transmission system constraints, or inertial response to provide system stability through faults?

HREA Response:

Regarding specific ancillary services see our response to IR-12. Regarding other issues beyond ancillary services, HREA would agree there are additional needs which we would become part of the GRIP. In addition, we would anticipate that the HECO Companies would propose specific projects to meet those needs and would seek reimbursement via the Clean Energy Infrastructure Surcharge ("CEIS").

HECO/HREA-IR-25

Please provide reference examples of jurisdictions where HREA believes that PBFiT has been implemented "right" or "smart". Does HREA believe these jurisdictions have similar operational and system integration issues to the Hawaii systems?

HREA Response:

HREA would refer HECO and the CA to various European Union jurisdictions, spearheaded by Germany, and since promulgated in France, Spain, Italy, Greece, Great Britain, Portugal and others. Of these, the experience of Germany would appear to be the best to HREA. However, Hawaii has the challenge to design FiTs for its unique location and climate.

Of the European countries, HREA believes the islands of Greece would have similar operational and system integration issues to Hawaii.



President, HREA

CERTIFICATE OF SERVICE

The foregoing HREA Response was served on the date of filing by Hand Delivery or electronically transmitted to each such Party as follows.

CATHERINE P. AWAKUNI
EXECUTIVE DIRECTOR
DEPT OF COMMERCE & CONSUMER AFFAIRS
DIVISION OF CONSUMER ADVOCACY
P.O. Box 541
Honolulu, Hawaii 96809

2 Copies
Via Hand Delivery

DEAN MATSUURA
MANAGER
REGULATORY AFFAIRS
HAWAIIAN ELECTRIC COMPANY, INC.
P.O. Box 2750
Honolulu, HI 96840-0001

Electronically transmitted

JAY IGNACIO
PRESIDENT
HAWAII ELECTRIC LIGHT COMPANY, INC.
P. O. Box 1027
Hilo, HI 96721-1027

Electronically transmitted

EDWARD L. REINHARDT
PRESIDENT
MAUI ELECTRIC COMPANY, LTD.
P. O. Box 398
Kahului, HI 96732

Electronically transmitted

THOMAS W. WILLIAMS, JR., ESQ.
PETER Y. KIKUTA, ESQ.
DAMON L. SCHMIDT, ESQ.
GOODSILL, ANDERSON QUINN & STIFEL
Alii Place, Suite 1800
1099 Alakea Street
Honolulu, Hawaii 96813

Electronically transmitted

ROD S. AOKI, ESQ.
ALCANTAR & KAHL LLP
120 Montgomery Street
Suite 2200
San Francisco, CA 94104

Electronically transmitted

MARK J. BENNETT, ESQ.
DEBORAH DAY EMERSON, ESQ.
GREGG J. KINKLEY, ESQ.
DEPARTMENT OF THE ATTORNEY GENERAL
425 Queen Street
Honolulu, Hawaii 96813
Counsel for DBEDT

Electronically transmitted

CARRIE K.S. OKINAGA, ESQ.
GORDON D. NELSON, ESQ.
DEPARTMENT OF THE CORPORATION COUNSEL
CITY AND COUNTY OF HONOLULU
530 South King Street, Room 110
Honolulu, Hawaii 96813

Electronically transmitted

LINCOLN S.T. ASHIDA, ESQ.
WILLIAM V. BRILHANTE JR., ESQ.
MICHAEL J. UDOVIC, ESQ.
DEPARTMENT OF THE CORPORATION COUNSEL
COUNTY OF HAWAII
101 Aupuni Street, Suite 325
Hilo, Hawaii 96720

Electronically transmitted

MR. RILEY SAITO
THE SOLAR ALLIANCE
73-1294 Awakea Street
Kailua-Kona, Hawaii 96740

Electronically transmitted

MR. CARL FREEDMAN
HAIKU DESIGN & ANALYSIS
4234 Hana Highway
Haiku, Hawaii 96708

Electronically transmitted

MR. THEODORE E. ROBERTS
SEMPRA GENERATION
101 Ash Street, HQ 12
San Diego, California 92101

Electronically transmitted

MR. ERIK KVAM
CHIEF EXECUTIVE OFFICER
ZERO EMISSIONS LEASING LLC
2800 Woodlawn Drive, Suite 131
Honolulu, Hawaii 96822

Electronically transmitted

JOHN N. REI
SOPOGY INC.
2660 Waiwai Loop
Honolulu, Hawaii 96819

Electronically transmitted

GERALD A. SUMIDA, ESQ.
TIM LUI-KWAN, ESQ.
NATHAN C. NELSON, ESQ.
CARLSMITH BALL LLP
ASB Tower, Suite 2200
1001 Bishop Street
Honolulu, Hawaii 96813
Counsel for HAWAII HOLDINGS, LLC, dba FIRST WIND HAWAII

Electronically transmitted

MR. CHRIS MENTZEL
CHIEF EXECUTIVE OFFICER
CLEAN ENERGY MAUI LLC
619 Kupulau Drive
Kihei, Hawaii 96753

Electronically transmitted


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